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EXAMINER	
WANG, EUGENIA	
ART UNIT	PAPER NUMBER
1795	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

Office Action Summary	Application No.	Applicant(s)	
	10/520,579	HOOD ET AL.	
	Examiner	Art Unit	
	EUGENIA WANG	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 July 2009 and 18 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) *9-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/16/09 and 7/6/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. In response to the amendment received July 6, 2009 and the supplemental amendment received August 18, 2009:

a. Claims 1-18 are pending with claims 9-18 being withdrawn as being drawn to unelected species. (The response to the arguments with respect to the restriction requirement and why such arguments are not convincing is set forth below.)

b. It is noted that the supplemental amendment received August 18, 2009 has been entered, as it only fixes grammatical errors.

c. The objection to the specification has been maintained, as no amendment/response has been filed with respect to it.

d. The 112 rejection of record has been maintained.

e. The core of the previous rejection has been maintained, wherein slight changes in nomenclature has been applied, as necessitated by the amendment. All changes made to the rejection are made in light of the amendment, thus the rejection of record is final.

Election/Restrictions

2. Claims 9-18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on July 6, 2009.

Response to Arguments

3. Applicant's election with traverse of species 1 (claims 1-8) in the reply filed on July 6, 2009 is acknowledged. The traversal is on the ground(s) that the species all include a generic feature (distribution foil/membrane with water conduits/channels having terminations that are substantially coincident with corresponding field plate channels), which is the special technical feature. This is not found persuasive because just because each species include a generic feature does not mean that the special technical features are not different. As set froth within the original restriction requirement, the special technical feature includes the specifics as set forth within the original restriction requirement (Species 1's special technical feature lies (a) in the channels in the distribution foil extend from a first edge to a second edge and (b) in the presence of the cover foil extends over the distribution to enclose the distribution foil channels. Species 2's special technical feature lies (a) in the fact that the channels of the distribution foil extend from either a first edge or proximal position to a second edge or proximal position and (b) that the cover foil is co-extensive with a substantial part of the distribution foil to enclose a part of the length of the distribution foil channels. Species 3's special technical feature lies (a) in the fact that the channels of the distribution foil extend from either a first edge or proximal position to a second edge or proximal position and (b) in the placement of the distribution membrane (between an MEA and fluid flow plate)), and thus the special technical feature of the species lies in the combination of the generic with the each distinct feature of the distinct species. There is no proof or reasoning as to how the specific, distinct technical features as set

forth within the original restriction requirement do not constitute a portion of the special technical feature of each species, as they help define the distinct structures of each species. Thus the arguments are not found to be persuasive.

The requirement is still deemed proper and is therefore made FINAL.

Priority

4. The disclosure is objected to because of the following informalities: the first paragraph does not mention the continuing data (and there is no application data sheet that mentions such information).

Information Disclosure Statement

5. The information disclosure statements filed April 16, 2009 and July 6, 2009 have been placed in the application file and the information referred to therein has been considered as to the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 recites the phrase “the plurality of distribution foil channels terminating at the second edge point at positions substantially coincident with respective ones of the plurality of field plate channels" (lines 6-7). However, it is unclear as to what "ones" refers to as both channels and edges of a distribution foil are mentioned. Thus it can be interpreted that the “respective ones” that

are coincident can be an edge of the fluid flow plate or channels of the fluid flow plate. Accordingly, such language is seen to be indefinite.

7. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: a fuel cell. (It is noted that a "fuel cell assembly" is claimed within the preamble, but the body of the claim does not require a fuel cell. Accordingly, any flow plate would read on the claim, as long as it is a structure which is capable of being used in a fuel cell.)

Response to Arguments

8. Applicant's arguments filed July 6, 2009 have been fully considered but they are not persuasive.

Applicant argues that the amendments overcome the 112 issue (with respect to indefiniteness as to what “ones” refers to).

Examiner respectfully disagrees. As set forth above, edges as well as channels are mentioned (as set forth above). Accordingly it is hard to ascertain what elements are coincident (edges with edges, edges with channels, or channels with channels). The amendment does not clarify this issue. Thus the arguments are not found to be persuasive, and rejection of record is maintained.

Applicant argues (with respect to the omission of essential elements) that the claim language does not omit necessary elements, as a fuel cell is within the preamble (and draws similarities to a claim wherein a chair is in the preamble and the feature is a seat and a seat cushion, wherein chair need not be recited in the body).

Examiner respectfully disagrees. The analogy drawn to a chair by applicant is not applicable for such a case. If a seat is available, then a chair exists. This is not the case for a flow field plate within a fuel cell assembly. The presence of a flow field plate does not necessitate or breathe life back into the preamble. For example, the flow field plate can be used in many other assemblies such as oxygen generators, electrolyzes, hydrogen generators, and accordingly, the body of the claim (flow field plate) does not necessitate the preamble (fuel cell assembly). In such a manner the preamble is akin to being intended use without the recitation of the fuel cell in the body. It is unsure how a fuel cell assembly with a flow field plate (and no fuel cell requirement) can actually constitute a fuel cell assembly. In such a manner, for a hypothetical situation, Examiner draws similarities of claiming a battery in the preamble wherein the body only claims a cathode with a specified cathode active material. In such a hypothetical example, without the recitation of an anode and electrolyte being present, a battery cannot exist (as it is missing essential parts that must be present to allow the invention as a whole to act as a battery). In such a manner, a claim wherein the body only fluid flow plate cannot constitute a fuel cell assembly. Thus, Applicant's arguments are not found to be convincing, and the rejection of record is maintained.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 1, 2, and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6066408 (Vitale et al.) in view of US 6303245 (Nelson).

As to claim 1, Vitale et al. al teach of a fuel cell assembly (fig. 1; col. 1, lines 8-12). There is a fluid flow plate (for example cathode plate [216]). Furthermore, there is a distribution foil (cooler-humidifier plate [202]) wherein with a plurality of channels (fig. 3). (It is noted that the lands [304] and island lands [306] are taken to from a plurality of channels within channel [218]. Additionally, it is noted that although not depicted, that one embodiment includes a plurality of channels (col. 7, lines 59-63). As seen in fig. 2C, portions of the channel of cooler-humidifier plate [202] extends through the plate, constituting a first edge (see bridge passage [224], as interpreted with respect to the portion facing the fuel cell plate [204],) and a second edge (with respect to the humidification side [214]) (for example depicted by the gas outlet [226] portion on the humidification side, as connected to the fuel cell plate [204] facing portion via channels [218] and bride passage [224]) (fig. 2C, fig. 3). It can be seen in fig. 2C that the channels of the cooler-humidifier plate [202] are coincident with those of the cathode flow plate [216]. The embodied material for the cooler-humidifier plate [202] is stainless steel (thus qualifying it to be considered a foil) (col. 6; lines 33-35). It is noted that the cathode plate [216] is seen to be a cover extending over the distribution foil (humidifier plate [202] to enclose the channels and form conduits for water between the them, as Vitale et al. teach that plate [216] serves the purpose of closing open-face flow channels [218] of the cooler-humidifier plate [202], wherein the wick of the coolant-humidifier plate [202] provides water to the reactant gas (col. 6, lines 44-46; col. 7, lines 64-65; fig. 3).

Vitale et al. does not specifically teach that the cover (cathode plate [216]) is a foil (the material used for the anode/cathode plates).

However, Nelson teaches that anode and cathode plates are typically metal (thus qualifying such plates to be a foil) (col. 1, lines 45-47). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a metal material (foil) for the cathode plate of Vitale et al. since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin,* 125 USPQ 416.

As to claim 2, Vitale et al.'s gas inlet [314] and water inlet [210] constitute a first series of channels extending to the first edge of the foil (side that faces the anode plate [204] in fig. 2C; fig. 3). Channel [218] with the lands [304] and island lands [306] constitute an array of channels in communication with the first series of channels, forming a pressure distribution gallery, as such a depicted channel keeps pressure differential low (col. 8, lines 44-49). A second series of channels [226] extends to the second edge of the foil (humidification side [214]) (fig. 2C; fig. 3). (It is noted that the claim language is seen as not requiring a plurality of channels for each series, as within independent claim 1, only a plurality of channels is required, wherein "of channels" is seen to refer back to the plurality of channels in claim 1, wherein only a plurality of channels must exist. Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Zletz*, 893F.2d 319, 321-22,13 USPQ2d, 1320, 1322 (Fed. Cir. 1989). However, it is noted

that an alternate rejection is made, wherein each series must have a plurality of channels. See portion denoted by "*" below.)

As to claim 6, the distribution foil channels [218] of Vitale et al. can be said to terminate at a first edge (side facing anode plate [204]) of the foil (plate [202]) at a supply manifold (holes [258] that deliver humidified cathode gas manifold [256]), as the manifold [258] and terminal point of foil channels (portion of [226] facing anode plate [204]) are in line with one another.

As to claim 7, Vitale et al. embody using stainless steel for the cooler-humidifier plate [202] is stainless steel (col. 6; lines 33-35).

As to claim 8, although Vitale et al. does not teach the method of which the distribution foil channels [218] are made, such a limitation is seen to be a product-by-process limitation, wherein the structure of Vitale et al. is the same as the claimed invention.

. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)(citations omitted).

"The Patent Office bears a lesser burden of proof in making out a case of prima facie obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. In re Fessmann, 489 F.2d 742,

744, 180 USPQ 324, 326 (CCPA 1974). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). Ex parte Gray, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989). See MPEP section 2113.

10. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vitale et al. and Nelson, as applied to claim 1, in further view of US 5998054 (Jones et al.).

*Alternately, as to claim 2, Vitale et al.'s gas inlet [314] and water inlet [210] constitute a first series of channels extending to the first edge of the foil (side that faces the anode plate [204] in fig. 2C; fig. 3). Channel [218] with the lands [304] and island lands [306] constitute an array of channels in communication with the first series of channels, forming a pressure distribution gallery, as such a depicted channel keeps pressure differential low (col. 8, lines 44-49). A second series having a channel [226] extends to the second edge of the foil (humidification side [214]) (fig. 2C; fig. 3).

Vitale et al. does not teach that the second series has channels.

However, Jones et al. teach that each fluid flow plate (bipolar plate) has a plurality of inlets/flow channels [126] and an equal amount of channels for water injection [131] (fig. 2; fig. 3). The motivation for employing such a system (multiple flow channels and a corresponding number of injection ports for water inlet) is that such a

system would allow easier mixing and uniform distribution of water over the volume of the fuel cell assembly (col. 3, lines 5-13; 26-34). Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to have multiple inlet channels, wherein there is a channel for humidity that corresponds to each (as taught by Jones et al. and applied to Vitale et al.), in order to have a fuel cell system wherein the water introduced to the reactant flow can be more uniformly mixed and distributed through the cell.

As to claim 3, Vitale et al. teach that the channel [226] terminates at a second edge (humidification side of cooler-humidifier plate [202]). As seen in fig. 2C, this can be seen to be a convergence structure, as it focuses water flow into the channels [210] in the fluid flow plate of fluid flow (as humid air exits through outlet [226]) (col. 7, lines 26-30).

Vitale et al. do not teach a plurality of convergence structures (corresponding with corresponding field plate channels).

However, Jones et al. teach that each fluid flow plate (bipolar plate) has a plurality of inlets/flow channels [126] and an equal amount of channels for water injection [131] (fig. 2; fig. 3). The motivation for employing such a system (multiple flow channels and a corresponding number of injection ports for water inlet) is that such a system would allow easier mixing and uniform distribution of water over the volume of the fuel cell assembly (col. 3, lines 5-13; 26-34). Therefore it would have been obvious to one having ordinary skill in the art at the time the claimed invention was made to have multiple inlet channels, wherein there is a channel for humidity that corresponds to

each (as taught by Jones et al. and applied to Vitale et al.), in order to have a fuel cell system wherein the water introduced to the reactant flow can be more uniformly mixed and distributed through the cell.

As to claim 4, Vitale et al.'s convergence structure (gas outlet [226]) shows a recess on the second edge (side [214] of plate [202]) of the distribution foil (plate [202]), as gas outlet [226] is cut out (fig. 3).

As to claim 5, Vitale et al.'s cut out (gas outlet [226]) can be considered to be arcuate, as at least one portion of the cut out is curved.

Response to Arguments

11. Applicant's arguments filed July 6, 2009 have been fully considered but they are not persuasive.

Applicant argues that Vitale et al.'s channels (of the distribution foils) do not terminate at the second edge at position substantially coincident with respective ones of the plurality of field plate channels because (a) humidified gas stream from plate [202] would need to pass through hole [258] and thus termination is not substantially coincident and (b) that only one termination point appears in Vitale.

Examiner respectfully disagrees.

With respect to (a), although the fluid may have to pass through hole [258], it does not negate the fact that the channels (of the flow field plate (see but not labeled in fig. 2c) and the distribution plate) can be interpreted to terminate at the edge of hole [258] (as applied to the cathode flow field plate [216] and the corresponding hole of plate [202]). In such a manner, such a position constitutes a termination of such channels. Office

personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Zletz*, 893F.2d 319, 321-22,13 USPQ2d, 1320, 1322 (Fed. Cir. 1989). Thus, such arguments are not found to be persuasive, and the rejection of record is maintained.

With respect to (b), as set forth within the rejection, a plurality of distribution channels is embodied by Vitale (fig. 3 wherein the lands [304] and island lands [306] are taken to from a plurality of channels within channel [218] and one embodiment stated to include a plurality of channels col. 7, lines 59-63). Furthermore, the cathode plate [216] is defined to have channels (and thus constitutes a plurality) (col. 6, lines 22-23). Accordingly, in such a manner, each individual distribution "channel" can be a terminating point, wherein there are a plurality of channels and thus a plurality of points, as defined by such channels. Nothing in the claim language precludes such an interpretation. Office personnel are to give claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Also, limitations appearing in the specification but not recited in the claim are not read into the claim. See *In re Zletz*, 893F.2d 319, 321-22,13 USPQ2d, 1320, 1322 (Fed. Cir. 1989). Thus, such arguments are not found to be persuasive, and the rejection of record is maintained.

Applicant argues that channel [202] of Vitale et al. does not distribute water, but conveys a humidified gas stream.

Examiner respectfully disagrees. Humidification is provided by water (col. 7, lines 64-65). Thus a humidified gas stream does serve to distribute water (as the stream is distributed within the system). Examiner is unsure how the provision of humidification (via water) to a stream used in the system does not constitute a distribution of such humidification (water). Accordingly, the arguments are not found to be persuasive, and the rejection of record is maintained.

With respect to the arguments regarding the 103 rejections, Applicant argues that the prior art used to obviate the rejected claims (Nelson et al.) do not cure the deficiencies of the primary reference (Vitale et al.). Applicant does not argue how the combination is not proper. Therefore, the Examiner maintains the obviousness rejections and upholds the rejection of the primary reference, as above.

Applicant argues that claims 9 and 15 are patentable for reasons similar to those applied to claim 1.

Examiner submits that such arguments are not applicable to the rejection at hand, as such claims (and their dependents) are withdrawn.

Applicant argues that the dependent claims are distinct from the prior art of record for the same reason as the independent claim.

Examiner respectfully disagrees. The rejection with respect to the independent claim has been maintained, and thus the rejections to the dependent claims are maintained as well.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EUGENIA WANG whose telephone number is (571)272-4942. The examiner can normally be reached on 7 - 4:30 Mon. - Thurs., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/E. W./
Examiner, Art Unit 1795

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795